Brownson, R.C., Alavanja, M.C.R., Hock, E.T., and Loy, T.S. "Passive Smoking and Lung Cancer in Nonsmoking Women," American Journal of Public Health 82: 1525-1530, 1992.

This case-control study is among the largest conducted on reported ETS exposure and lung cancer incidence. It includes 432 "lifetime" nonsmokers and 186 exsmokers, and 1,402 controls. Cases were identified from 1986-1991 through the Missouri Cancer Registry. Interviews were conducted by telephone; 402 surrogate interviews were conducted among the 618 cases. ETS exposure was assessed as duration, intensity, and hours per day of exposure ("quantitative measures") and as "perceived" levels of exposure. No statistically significant odds ratios (ORs) were reported for any of the "quantitative" measures of exposure. Nevertheless, the authors concluded that their data supported a "small but consistent elevation in the risk of lung cancer in nonsmokers due to passive smoking." Moreover, they proposed that "[t]he proliferation of . . . regulations that restrict smoking in public places and work sites is well founded."

- An OR of 1.0 (95% CI 0.8-1.2) was reported for spousal smoking in nonsmokers (218 cases and 598 controls). This odds ratio is not statistically significant.

- For exposure during childhood, no statistically significantly elevated risk estimates were reported. However, for parents having ever smoked, an OR of 0.7 (95% CI 0.5-0.9) was reported, based on 74 cases and 289 controls; this particular OR was statistically significantly negative.

- The authors wrote that, based on their data, "there was no elevated lung cancer risk associated with passive smoke exposure in the workplace." However, the data on reported workplace exposures were not presented.

- More than 80 ORs were reported in this study. The large number of subgroup analyses, sometimes referred to as "data-dredging," increases the probability that some statistically significant ORs will be reported due to chance alone.

- While no statistically significant ORs were reported for the quantitative indices of exposure, a few were reported for the indices of perceived exposure.

- No statistically significant ORs were calculated when the data were analyzed by lung cancer cell type, further contributing to inconsistencies in this area.

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- The authors state that their study has "several major strengths," citing large sample size, high response rates from cases and controls and pathology review for cases. While the sample size is indeed large, surrogate respondents accounted for 65% of case interviews, and histological confirmation was unavailable for approximately one-fourth of the cases.

- Reportedly, the potential confounders of age, smoking history, history of previous lung disease, dietary beta-carotene consumption, and dietary fat consumption were considered. The authors reported that only age, active smoking (for exsmokers), and previous lung disease "appeared to confound passive smoking findings."

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